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# CHAPTER 20

## EARTHQUAKE PREPAREDNESS

### HOW TO PREPARE FOR EARTHQUAKES

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**EARTHQUAKE PREPAREDNESS**

**THIS SPACE AVAILABLE FOR NOTES:**

# CHAPTER 20

## **EARTHQUAKE PREPAREDNESS**

### **HOW TO PREPARE FOR EARTHQUAKES**

#### **20.00 INTRODUCTION**

This chapter discusses routine actions to prepare for and cope with the destructive forces of an earthquake and employee survival techniques, before, during, and after an earthquake occurs.

This chapter focuses on preparations that can be made prior to the occurrence of an earthquake.

The actual movement caused by an earthquake is seldom a direct cause of injury and death. The movement can cause buildings and other structures to shake and collapse. This chapter focuses on the preparations to reduce injuries that can result from falling debris and objects, splintering window glass, and fire after the earthquake occurs.

#### **20.01 PURPOSE**

The purpose of this chapter is to provide employees with information about how they can make the workplace and themselves safer in the event of an earthquake.

This chapter does not deal with actual emergency procedures or instructions.

For specific emergency instructions on how to act and respond in the event of an earthquake, building evacuation, assembly points, and medical emergency responses, refer to the EMERGENCY ACTION PLAN for the building in which you work.

(Each Caltrans facility is required to have a site specific EMERGENCY ACTION PLAN. See Chapter 8, Section 8.06 and 8.07 for details.)

#### **20.02 POLICY STATEMENT**

In order to prepare for and cope with an earthquake, every Caltrans owned, rented, or leased facility shall have a written Emergency Action Plan which includes specific instructions on emergency procedures to be followed in the event of an earthquake.

**20.03 WORKPLACE PREPAREDNESS**

Earthquake-related injuries and damages can be minimized simply by becoming aware of potential hazards and taking some basic earthquake preparedness measures.

Earthquakes strike without warning so it is important that specific preparedness measures be taken and then be re-evaluated on a regular basis. The following is a list of items that should be considered when preparing your workplace for a possible earthquake:

- Check first aid supplies.
- Secure all cabinets and shelving to prevent tipping.
- Be aware of overhead hazards (hanging plants, pictures, etc.).
- Remove heavy items from high shelves.
- Keep aisles clear of stacked materials and file cabinets.
- Ensure that computers, printers, and typewriters will not fall.
- Arrange partitions to prevent “domino effect”.
- Arrange work areas to prevent “trapping” of personnel.
- Make sure that exits are clearly marked.

Supervisors should arrange to have the building maintenance personnel make necessary corrections and/or repairs to ensure that the above suggested actions are implemented.

See Chapter 5, PART 1. SAFETY AND HEALTH FOR OFFICE WORKERS, OFFICE SAFETY AND GOOD HOUSEKEEPING, for details about securing furniture and equipment.

**20.04 PERSONAL PREPAREDNESS**

There are many things that individuals can do to protect themselves and others in the event of an earthquake. Following is a list of things to do and items to be familiar with in your work area before an earthquake occurs.

- Building managers shall appoint emergency coordinators for each work location.
- Hold earthquake drills in which all employees participate.
- Know where to go in the event of an earthquake:
  - stand in a doorway,
  - get under a sturdy table or desk, or
  - crouch near the wall and cover your head if caught in a hallway.
- Know where building exits are located.
- Know the location of fire extinguishers in your immediate work area.
- Decide on a safe predesignated meeting place.
- Have a flashlight available if working during the hours of darkness.
- Know the location of the nearest first aid kit.
- Keep emergency supplies available at your worksite, such as non-perishable food.
- Have a battery radio available, if possible. The power may go off and the radio may be the only source of emergency information.
- Familiarize yourself with your facility's Emergency Action Plan.
- Disabled employees are encouraged to develop a "buddy" system with co-workers.

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**20.05 DURING THE EARTHQUAKE**

When an earthquake occurs, the solid earth may pitch and roll like the deck of a ship for several minutes. Earthquakes strike without warning and there will be only seconds to react.

Most casualties result from falling debris and objects, splintering window glass, and fire. The chances of being injured during an earthquake will be reduced if the following procedures are adhered to during the earthquake:

- **DUCK**        When you feel an earthquake, duck under a sturdy table or desk. Stay away from windows, bookcases, file cabinets, tall furniture, heavy mirrors, hanging plants, and other heavy objects that could fall. Watch out for falling plaster or ceiling tiles.
- **COVER**        Stay under cover until the shaking stops. If no table or desk is available, seek cover against an interior wall and protect your head and neck with your arms.
- **HOLD**        Hold onto the table or desk. If it moves, move with it. Hold the position until the ground stops shaking and it is safe to move.

The following are additional tips for specific locations:

- If you are in a high rise building and you are not near a table or desk, move against an interior wall and protect your head with your arms. Do not use elevators. Do not be surprised if the fire alarm sounds or sprinkler systems come on.
- If you are in an elevator, stop at the nearest floor. Exit the elevator and take cover against the interior wall.
- If you are in hallway or corridor, brace yourself against the wall and try to avoid moving. Duck and cover your head with your arms.
- If you are outside, move to a clear area away from trees, buildings, or downed electrical power lines and poles.
- If you are on a sidewalk near buildings, duck into a doorway to protect yourself from falling building materials, window glass, and other building debris.

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- If you are driving a vehicle, pull over to the side of the roadway and stop. Avoid driving under or over highway bridges and underpasses. Avoid driving near electrical power lines. Stay inside your vehicle until the shaking has stopped.
  - If you are in a crowded store or other public place, do not go outside or rush to the exits. Move away from window displays and shelves containing objects that could fall on you.
  - If you are handicapped, such as confined to a wheelchair, stay in the chair. Move to cover. If possible, lock the wheels and protect your head with your arms.
  - If you are home, move away from cabinets, refrigerator, and overhead cupboards. (Consider anchoring appliances to the wall.)
  - If you are at a sporting event; i.e., stadium, theater, stay in your seat and protect your head with your arms. Do not try to leave the facility until the shaking has stopped.
  - Always leave a building in a calm and orderly manner. Do not push or crowd others.

## **20.06 AFTER THE EARTHQUAKE**

After an earthquake, there are likely to be aftershocks and a great deal of confusion. If the proper precautionary steps are followed, personal injuries can be reduced. The following steps should be taken immediately after an earthquake to minimize the chance of injury.

- Remain under cover for a few minutes and prepare for the possibility of aftershocks. Aftershocks often cause more damage to buildings already weakened by the initial shock. Plan where you will seek cover in the event of an after-shock.
- If your building appears to have significant damage, evacuate to a safe pre-determined location, until emergency personnel advises you of the ability to return to your work location.
- Replace telephone receivers back on the telephone cradle. Replacing the receiver will allow telephone circuits to operate properly. Do not use the telephone for personal calls. Use telephones only to report emergencies.

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- Check your work area for injured employees and give first aid as may be deemed appropriate. Seek medical treatment as may be required. Do not attempt to move injured persons unless they are in immediate danger.
  - Check for fire hazards. Do not smoke or light matches. Do not turn on lights or other electrical circuits until you are certain that there is no risk of gas leaks.
  - Do not use elevators. Use stairs or fire escape to exit buildings.
  - Turn on portable radio for instructions and news reports. Cooperate fully with emergency personnel.
  - Remain calm and assess your situation carefully. Do not spread rumors, as they often do more harm after the disaster. Reassure and help others.
  - Assist others with special needs.
  - Be aware of other possible dangers which may follow an earthquake such as fire, flood, or landslide.
  - Follow all emergency instructions and if ordered, evacuate according to the Emergency Action Plan for your facility.

## **20.07 EMERGENCY ACTION PLANS**

Supervisors are required to have a copy of, and be familiar with the emergency action plan covering their work area.

See Chapter 8, Section 8.06 EMERGENCY ACTION PLAN REQUIREMENTS FOR ALL WORK LOCATIONS, and Section 8.07 EMERGENCY ACTION PLANS AND EVACUATION REQUIREMENTS SPECIFICALLY COVERING THE AMERICANS WITH DISABILITIES ACT (ADA) for more details.